



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/624,573	07/23/2003	Jun Yura	240478US3 DIV	6618
22850	7590	04/26/2005	EXAMINER	
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			COMPTON, ERIC B	
			ART UNIT	PAPER NUMBER
			3726	

DATE MAILED: 04/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

E

<b>Office Action Summary</b>	<b>Application No.</b> 10/624,573	<b>Applicant(s)</b> YURA ET AL.	
	<b>Examiner</b> Eric B. Compton	<b>Art Unit</b> 3726	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 18 January 2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☐ Claim(s) \_\_\_\_\_ is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) \_\_\_\_\_ is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☒ Certified copies of the priority documents have been received in Application No. 09/874,990.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>1/5/05 &amp; 2/15/05</u> | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. 4,594,068 to Bardutzky et al ("Bardutzky") in light of Applicant's Admitted Prior Art (AAPA).

Bardutzky discloses a method of producing a heating roller (10), comprising:  
providing a core of hollow cylinder form (9'); and

forming an outer circumference surface of the core; wherein a thickness of the core is greater in a center portion thereof than in end portions thereof. See Fig. 3; Col. 5, lines 58-60 (disclosing second embodiment of invention);

wherein the core is configured to receive a heat element (see Col. 1, lines 6-7) within an interior thereof.

Bardutzky discloses that this particular design provide for the "areas of highest speed of the passage in the roller gap are no longer effectively on the outside edges, but act closer to the middle of the roller." Cols. 5-6, lines 66-1. The invention, as a whole, prevents wrinkling and buckling. See Col. 2, lines 31-35.

However, Bardutzky does not explicitly disclose how the roller is forming, nor specifically the steps of drawing the core nor cutting the outer surface to form the roller.

AAPA, as found of pages 1-2 of the specification, discloses conventional methods of forming rollers of this type. AAPA notes that it is known in the art to thinning, *i.e.*, drawing the core to decrease heat capacity. Section [0004]. Furthermore, AAPA notes it is known to cut the outer circumference surface of the center portion to form a contour in the nip to reduce wrinkles. Sections [0004-0005].

Regarding claim 1, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have produced the heating roller of Bardutzky by drawing the core and cutting the outer surface, in light of the teachings of AAPA, in order to form the roller having reduced heat capacity and to reduce wrinkles.

3. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. 5,195,430 to Rise in light of Applicant's Admitted Prior Art (AAPA).

Rise discloses a method of producing a heating roller (see Fig. 12), comprising:  
providing a core of hollow cylinder form (50); and

forming an outer circumference surface of the core; wherein a thickness of the core is greater in a center portion thereof than in end portions thereof. See Fig. 12; Col. 10, lines 35-36 (disclosing alternative embodiment of invention);

Rise states, with regards to this embodiment, "The resulting roller provides for application of pressure which is slightly higher is the center than at the ends of the core." Col. 10, lines 44-46.

Note: the limitations "adapted to" or (configured to) have been held not to be a positive limitation but only require the ability to so perform. It does not constitute a limitation in any patentable sense. *In re Hutchison*, 69 USPQ 138, 154 F.2d 135 (CCPA

1946). While Rise does not explicitly disclose that the core is configured to receive a heat element within an interior thereof, he discussed that heated cores are known in the prior art for particular inks. See Col. 2, lines 59-66. Rise thus can be configured, as such, and the disclosure suggests this as well, in order to provide for particular inks if necessary.

However, Rise does not explicitly disclose how the roller is forming, nor specifically the steps of drawing the core nor cutting the outer surface to form the roller.

AAPA, as found on pages 1-2 of the specification, discloses conventional methods of forming rollers of this type. AAPA notes that it is known in the art to thinning, *i.e.*, drawing the core to decrease heat capacity. Section [0004]. Furthermore, AAPA notes it is known to cut the outer circumference surface of the center portion to form a contour in the nip to reduce wrinkles. Sections [0004-0005].

Regarding claims 1 and 4, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have produced the heating roller of Rise by drawing the core and cutting the outer surface, in light of the teachings of AAPA, in order to form the roller having reduced heat capacity and to reduce wrinkles.

Regarding claim 2, as shown in Figure 12 of Rise, the core is formed such that the inside diameter of the core is smaller in the center portion thereof than in the both end portions thereof.

Regarding claim 3, as shown in Figure 12 of Rise, core is formed such that an outside diameter of the core is substantially constant in a shaft direction of the core.

4. Claim 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. 4,768,050 to Beery in light of Applicant's Admitted Prior Art (AAPA).

Art Unit: 3726

Beery discloses a method of producing a heating roller (developer roller 10), comprising:

providing a core of hollow cylinder form ("first roll 10 which is hollow, or formed like a shell ... Col.5, lines 42-43.); and

forming an outer circumference surface of the core; wherein a thickness of the core is greater in a center portion thereof than in end portions thereof.

It will be noted, in reference to FIG. 2, that the interior surface of the roll 10 is partially tapered, leading first from a relatively straight section 45 [where the thickness is greater than the end portions], including an intermediate tapered section 46 and an end relief section 48. The taper provides for the controlled deflection of the shell portion of the roll 10 when loaded by the application of a downward force, in the direction of the arrows 50, on the bearings 40 at the ends of the roll, as illustrated in FIG. 2. ***The taper or contouring of the internal surface of the roll 10 provides for control of the moment of inertia, such that an approximately uniform pressure distribution may be defined along the nip between the roll pairs throughout the working zone 42.*** The matching of the rolls 10 and 12 is affected by considering the basic theory of beam bending, the deflections caused by shear stresses, the changes in cross-section at axial nodal positions, and the local effects consisting of deflections of the thin-walled portion of the roll 12. It has been found helpful to utilize the finite element analysis method in calculating the expected deflections.

Col. 6, lines 1-21 (emphasis added). "[A] uniform force may be created between the roll pairs by suitably tapering the wall thickness of the first roll from a maximum thickness at the central region to a lesser thickness at the axial outer portions of the working zone thereof." Col. 3, lines 51-55. The outside diameter of the core is smaller in the center portion thereof than in the end portions thereof. See Col. 7, lines 49-52 (disclosing the roll may be formed to have a positive camber); see *also* Figure 2 (showing gap at 94).

However, Beery does not explicitly disclose how the roller is forming, nor specifically the steps of drawing the core nor cutting the outer surface to form the roller.

AAPA, as found of pages 1-2 of the specification, discloses conventional methods of forming rollers of this type. AAPA notes that it is known in the art to thinning, *i.e.*, drawing the core to decrease heat capacity. Section [0004]. Furthermore, AAPA notes it is known to cut the outer circumference surface of the center portion to form a contour in the nip to reduce wrinkles. Sections [0004-0005].

Regarding claim 4, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have produced the heating roller of Beery by drawing the core and cutting the outer surface, in light of the teachings of AAPA, in order to form the roller having reduced heat capacity and to reduce wrinkles.

5. Claim 5-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. 6,119,969 to Curry et al ("Curry") in view of Applicant's Admitted Prior Art (AAPA).

Curry discloses a fuser roller having an internal heating element, wherein the center portion is thicker than the end portions. "The rolls of the present invention provide a simple way for regulating the fuser temperature such that it is uniform across the length of the hot roll, is uniform between the transitory (heat up) state and the steady state, and minimizes hot roll temperature overshoot during the transitory phase."

Abstract. The disclosure indicates the roller can be formed from a single material and smoothly and gradually reduced from the center to the end, *i.e.*, tapered See Col. 9, lines 6-12. The core is presumably supported by bearings at its ends (103).

Art Unit: 3726

However, Curry does not explicitly disclose how the roller is forming, nor specifically the steps of drawing the core nor cutting the outer surface to form the roller.

AAPA, as found of pages 1-2 of the specification, discloses conventional methods of forming rollers of this type having a heating element. AAPA notes that it is known in the art to thinning, *i.e.*, drawing the core to decrease heat capacity. Section [0004]. Furthermore, AAPA notes it is known to cut the outer circumference surface of the center portion to form a contour in the nip to reduce wrinkles. Sections [0004-0005]. Figure 9-11 shows the prior art roller assembly. In figure 9, the fixing roller (118) is rotatably support on the frame presumably by bearings.

Note: the limitations “adapted to” or (configured to) have been held not to be a positive limitation but only require the ability to so perform. It does not constitute a limitation in any patentable sense. *In re Hutchison*, 69 USPQ 138, 154 F.2d 135 (CCPA 1946). Nonetheless, both Curry and AAPA are capable of being provided with bearings on the outer circumference surface thereof.

Regarding claim 5 and 9, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have produced the heating roller of Curry by drawing the core and cutting the outer surface, in light of the teachings of AAPA, in order to form the roller having reduced heat capacity and to reduce wrinkles.

Regarding claims 6 and 10, as shown in Figure 6 of Curry shows the inside diameter of the core is smaller in the center portion than at the end portions.

Regarding claims 7 and 11, as shown in Figure 6 of Curry, the outside diameter is substantially constant in the shaft direction of the core.



Regarding claim 8, and 12, AAPA notes that it is known in the art to make the outside diameter of core smaller in the center portion than in the ends in order to prevent wrinkles. See Speciation at [0005]. Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have provided such in order to reduce wrinkles.

Regarding claims 13-14, Note: the limitations "adapted to" or (configured to) have been held not to be a positive limitation but only require the ability to so perform. It does not constitute a limitation in any patentable sense. *In re Hutchison*, 69 USPQ 138, 154 F.2d 135 (CCPA 1946). Nonetheless, both Curry and AAPA are capable of being provided with bearings on the outer circumference surface thereof. With regards to the limitation depending from the "configured to" limitation, Applicant is directed towards JP 09-034296 to RICOH CO LTD, which disclosed this mounting configuration, having a drive gear (8) and heat insulation bushings (between bearing and core).

### ***Response to Arguments***

6. Applicant's arguments filed January 18, 2005, ("Response") have been fully considered but they are not persuasive.

Applicant argues that Beery does not disclose the core is configured to receive a heat element. Response, page 6. This argument is found persuasive with respect to claims 1-3, because Beery seems to incapable of being "configure[d] to receive a heat element within an interior thereof." The remaining claims 4-14 does not included this limitation.

Art Unit: 3726

Based on Applicant's amendments, new grounds of rejections are provided for above as well.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

### ***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric B. Compton whose telephone number is (571) 272-4527. The examiner can normally be reached on M-F, 9-5.

Art Unit: 3726

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter D. Vo can be reached on (571) 272-4690. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Eric B. Compton  
Primary Examiner  
Art Unit 3726

ebc